

Appln No. 10/090,915

Amdt date February 12, 2004

Reply to Office action of August 14, 2003

REMARKS/ARGUMENTS

As a preliminary matter, applicant would like to thank the Examiner for taking the time to conduct a telephonic interview with applicant's representative on September 17, 2003. During that interview, the Bailey (U.S. Patent No. 4,137,123) and Okunaka (U.S. Patent No. 4,643,913) references were discussed, as well as the functional equivalency of isopropanol and ethylene glycol. However, no agreement was reached.

Claims 1 to 12 are pending. Applicant has amended claims 1, 5 to 7, and 12. The amendments to claims 1, 5 to 7, and 12 find full support in the original specification. In view of the above amendments and the following remarks, applicant respectfully requests favorable reconsideration and a timely indication of allowance.

Claims 1 to 3, and 7 to 9 have been rejected under 35 U.S.C. § 103(a) as allegedly unpatentable for obviousness over Bailey et al., U.S. Patent No. 4,137,123 ("Bailey"). Applicant respectfully traverses this rejection.

Each of independent claims 1 and 7, as amended, recites an etching solution including both isopropanol and ethylene glycol. In the Office action it is conceded that Bailey fails to teach that isopropanol and ethylene glycol may be introduced simultaneously. However, the rejection is maintained on the basis that it would have been obvious to introduce the two constituents together because they allegedly are functional equivalents.

This reasoning fails to consider that the combination of isopropanol and ethylene glycol in an etching solution produces

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unexpected and desirable results. In particular, the combination renders the etching solution immediately useable, produces pyramids of sufficiently low heights, and gives the solution a lower evaporation rate.

In contrast, purely ethylene glycol etching solutions are known to produce pyramids of sufficiently small heights, but the solution cannot be used immediately upon formation. Similarly, purely isopropanol etching solutions are known to be immediately useable, but produce pyramids of excessive heights and possess unacceptably high evaporation rates. Because isopropanol and ethylene glycol produce essentially opposite results when used in etching solutions, they are not functionally equivalent.

In addition, even assuming for the sake of argument that isopropanol and ethylene glycol are functionally equivalent in some applications, they are not functionally equivalent when used in etching solutions, as explained above. Also, Bailey discloses a silicon-containing etching solution. Therefore, even assuming Bailey teaches that isopropanol and ethylene glycol are functionally equivalent in etching solutions, there is no indication that they are functionally equivalent when used in an etching solution that does not contain silicon. Finally, regardless of whether or not one skilled in the art could have understood Bailey as teaching that isopropanol and ethylene glycol are functionally equivalent for etching purposes, the *unexpected results* produced by combining the two constituents strongly indicate that it would not have been obvious to combine the two for these purposes. Therefore, because isopropanol and ethylene glycol are not functionally equivalent as explained

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above, and because Bailey admittedly fails to teach the use of a combination of those two constituents in an etching solution, applicant respectfully requests that the rejection over Bailey be withdrawn.

The Examiner also rejected claims 1 to 5 and 7 to 11 under 35 U.S.C. § 103(a) as allegedly unpatentable for obviousness over Bailey in view of Okunaka et al., U.S. Patent No. 4,643,913 ("Okunaka"). Applicant respectfully traverses this rejection.

Claims 1, 5 to 7, and 12, as amended, recite an etching solution containing, among other things, isopropanol and aqueous alkaline ethylene glycol. In contrast, Okunaka teaches that "alcohols such as ethanol and isopropanol and ethylene glycol monoalkyl ethers" can be used in a solvent. (Okunaka, col. 4 line67 - col. 5 line 6, emphasis added). Ethylene glycol, an alcohol, is chemically distinct from ethylene glycol monoalkyl ether, which is an ether. Furthermore, claims 1, 5 to 7, and 12, as amended, clearly recite ethylene glycol, as distinguished from an ethylene glycol solution, effectively distinguishing the present application from Okunaka.

In addition, applicant submits that Okunaka recites a solvent using either alcohols, such as ethanol or isopropanol, or ethylene glycol monoalkyl ethers. This interpretation is consistent with the language of the Okunaka reference, as quoted above. Accordingly, neither Bailey nor Okunaka teaches the combination of isopropanol and ethylene glycol in the same solution, as claimed by applicant. Therefore, in view of the amendments to claims 1, 5 to 7, and 12, applicant respectfully submits that these claims are not obvious over the cited

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references, and that the rejection over Bailey in view of Okunaka should be withdrawn.

The Examiner has also rejected claims 6 and 12 under 35 U.S.C. § 103(a) as unpatentable for obviousness over Bailey, in view of Okunaka and applicant's cited art. Applicant respectfully traverses this rejection as well.

As discussed above and in view of the amendments to claims 1, 5 to 7, and 12, Bailey neither by itself, nor in combination with Okunaka teaches or suggests the combination of isopropanol and ethylene glycol in an etching solution. Therefore, independent claims 1 and 7 are currently allowable for the reasons stated above. Because claim 6 is dependent on and further limits claim 1, and claim 12 is dependent on and further limits claim 7, it is submitted that claims 6 and 12 are also allowable. Applicant therefore respectfully requests that the rejection of these claims over Bailey in view of Okunaka and Applicant's cited art be withdrawn.

In addition, claims 2 to 5 and 8 to 11 are dependent on allowable claims 1 and 7, and are allowable on that basis. Therefore, Applicant respectfully requests that the rejection of these claims under Bailey, either by itself, or in combination with Okunaka, be withdrawn.

For all of the foregoing reasons, Applicant respectfully submits that pending claims 1 to 12, as amended, are in condition for allowance. A timely indication of allowance is therefore respectfully requested. If there are any remaining issues that can be addressed by telephone, Applicant invites the

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Examiner to contact the undersigned at the number indicated below.

Respectfully submitted,

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By



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626/795-9900

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